

**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

PANASONIC HOLDINGS CORP.,

Plaintiff,

v.

BROADCOM CORP.,

Defendant.

C.A. No. 6:22-cv-00756-ADA

JURY TRIAL DEMANDED

BROADCOM'S OPENING CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

Plaintiff Panasonic Holdings Corp. (“Panasonic”) alleges that Defendant Broadcom Corp. (“Broadcom”) infringes various claims of U.S. Patent No. 6,927,664 (“the ’664 patent”) (Ex. 1), U.S. Patent No. 6,965,107 (“the ’107 patent”) (Ex. 2), U.S. Patent No. 6,975,641 (“the ’641 patent”) (Ex. 3), U.S. Patent No. 7,328,389 (“the ’389 patent”) (Ex. 4), and U.S. Patent No. 9,473,268 (“the ’268 patent”) (Ex. 5). Broadcom hereby respectfully submits its opening claim construction brief.¹

II. DISPUTED CLAIM TERMS

The parties dispute the meaning of nine claim terms. Broadcom requests that the Court adopt Broadcom’s proposed constructions for the reasons set forth below.

A. U.S. Pat. No. 6,927,664

1. “A mutual induction circuit formed using first and second wiring layers arranged parallel to each other in a vertical direction” (claim 1)

Broadcom’s Proposed Construction	Panasonic’s Proposed Construction
Preamble is limiting.	Plain and ordinary meaning in view of knowledge of one of ordinary skill in the art and the intrinsic and extrinsic evidence.

“In general, a preamble limits the invention if it recites essential structure or steps, or if it is ‘necessary to give life, meaning, and vitality’ to the claim.” *Catalina Marketing International, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quotations omitted). That is the case here.

¹ Exhibits to this brief are attached to the Declaration of Edward J. Mayle.

The preamble of claim 1 of the '664 Patent recites a “mutual induction circuit formed using first and second wiring layers arranged parallel to each other in a vertical direction.” The body of claim 1 repeatedly relies on the preamble for antecedent basis. In particular, the body of the claim repeatedly refers back to “the first and second wiring layers” that were introduced in the claim’s preamble:

1. A mutual induction circuit formed using **first and second wiring layers** arranged parallel to each other in a vertical direction, the circuit comprising:

a first inductor; and

a second inductor situated such that a magnetic flux induced in the first inductor passes therethrough,

wherein the first and second inductors are each provided using **the first and second wiring layers** such that if projected into one of **the first and second wiring layers** either along a vertical upward direction or a vertical downward direction, outlines of a projection form a symmetrical shape with respect to a first reference plane, and portions corresponding to intersections between the outlines of the projection on the wiring layer are formed so as to be out of contact with each other.

Ex. 1 at 46:58-47:6.

Because the body of the claim refers back to elements of the induction circuit introduced in the preamble, the preamble is necessary to give life, meaning, and vitality to the claim and should be construed as a limitation to the claim. *See Shoes by Firebug LLC v. Stride Rite Children's Group, LLC*, 962 F.3d 1362, 1368 (Fed. Cir. 2020) (“use of preamble terms to define positive limitations in the body of claims can evince an inventor’s intent that the preamble limit the scope of the claim”).

B. U.S. Pat. No. 6,956,107**1. “wherein said second cavity portion is configured to communicate with said first cavity portion” (claim 7)**

Broadcom’s Proposed Construction	Panasonic’s Proposed Construction
wherein openings exist between said second cavity portion and said first cavity portion such that the atmosphere of said second cavity portion has the same degree of vacuum as the atmosphere in said first cavity portion	Plain and ordinary meaning

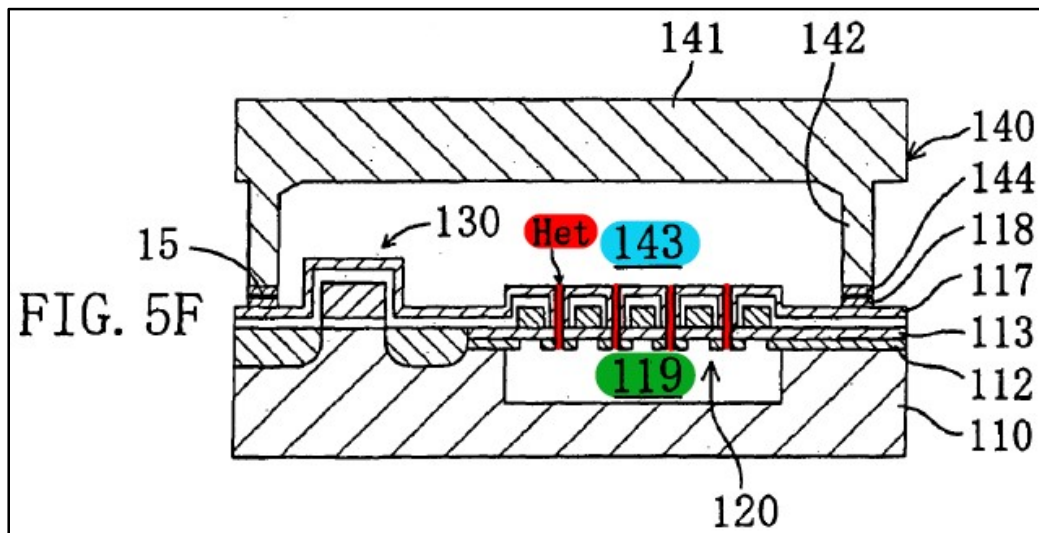
Claim 7 of the ’107 Patent requires that the claimed electronic device contain two cavity portions, where the second is “configured to communicate” with the first:

7. An electronic device, comprising:
a main body substrate having a plurality of cell regions in which at least one element is disposed;
a cap body placed on said main body substrate;
a first cavity portion provided in a position having said element disposed therein and being located in at least one cell region of said plurality of cell regions, enclosed by said main body substrate and said cap body to be maintained in an atmosphere of reduced pressure or in an atmosphere of inert gas; and
a ring-shaped joining portion provided between said main body substrate and said cap body for isolating said first cavity portion from external space,
wherein said electronic device comprises a support member for supporting said element, and a second cavity portion formed below said support member,
wherein said second cavity portion is configured to communicate with said first cavity portion, and
wherein said cap body is provided with a recess portion for forming said cavity portion and a drum portion enclosing the recess portion, and said main body substrate is provided with an engagement portion for engaging with said drum portion.

Ex. 2 (emphasis added). The claim itself does not describe how one cavity portion might be “configured to communicate” with another cavity portion. However, the claims do not stand alone. They must be read in view of the specification, which “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a

disputed term.” *Vitronics Corp. v. Conception, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). When read as a whole, the specification of the ’107 Patent makes clear that the cavity portions are “configured to communicate” when they are not sealed off from each other, and instead have openings in the partition between them that allow them to share atmospheric characteristics.

The specification only describes communication between the cavity portions in one instance: when describing the invention as formed by the manufacturing process shown in Figures 5A to 5F. *See generally* Ex. 2 at 16:48-17:10. In particular, the ’107 Patent states that “because the cavity portion 119 formed below the resistance element 120 communicates with the space within the cap 141 [cavity portion 143] through the hole *Het*, the atmosphere of the cavity portion 119 has the same degree of vacuum as the atmosphere in the cap 141.” *Id.* at 16:60-64. This structure is clearly illustrated in Figure 5F, where the **first cavity portion 143** communicates with **second cavity portion 119** via **holes *Het*** in the barrier between them:



The specification goes on to confirm that, if the cavities were “isolated” rather than in communication, cavity portion 119 would not be able to hold the level of vacuum that is described

as a particular benefit of cavity portion 143. *See generally id.* at 64-17:1. In that instance, the atmosphere of cavity portion 119 would be “sealed” as shown in Figure 5B: separated from cavity portion 143 by a partition without any holes Het. *Id.* Therefore, the ’107 Patent’s specification connotes that the “communication” between the cavity portions 119 and 143 is both a product of holes in the barrier between them and of a nature that causes their atmosphere to have the same “degree of vacuum.” Indeed, one flows naturally from the other: in order for the cavity portions’ atmospheres to share the same degree of vacuum (i.e., to maintain the same air pressure), air must be able to pass between them through holes Het.

This ability to hold portions of the claimed electrical device at a particular reduced atmospheric pressure is a key aim of the invention, “which relates to electronic devices, such as sensors and transistors, configured to be sealed in an atmosphere of reduced pressure or an atmosphere of inert gas.” Ex. 2 at 1:17-20. In fact, the ’107 Patent discloses only two “object[s] of the present invention,” both of which relate to the invention’s ability to control the atmospheric pressure of the electronic device. *See id.* at 2:3-13. The patent confirms that providing a reduced pressure atmosphere or a degree of vacuum helps “improve the function” of electronic devices, such as infrared sensors, that are placed in the invention’s cavity portions. *Id.* at 10-13. *See also id.* at 1:21-29, 6:54-57. The holes Het are described in the specification as a means for the two cavity portions to “communicate” with each other to ensure the critical element of the claimed invention: an atmosphere of reduced pressure or vacuum.

Moreover, the only other time the ’107 Patent describes a cavity portion as “communicating” with another space, the specification again describes openings or holes in the structure that otherwise would separate the cavity portion from that other space. In particular, the

specification states that, before the cap body that will form the first cavity area 143 is attached, “the cavity portion 119 *communicates* with external space *through openings Het* formed by this etching.” *Id.* at 15:53-54 (emphasis added). This description of communication between cavity portion 119 and external space exactly matches the description of communication between cavity portions 119 and 143. Here too, the inventor defined communication between two spaces as a connection between those spaces via holes in the structure that divides them. This consistent usage of the term “communicate” further compels adoption of Broadcom’s construction. *See, e.g., AstraZeneca LP v. Apotex, Inc.*, 633 F.3d 1042, 1052 (Fed. Cir. 2010) (“[W]hen a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term by implication.”) (quoting *Bell Atl. Network Servs., Inc. v. Covad Commc’ns Grp, Inc.*, 262 F.3d 1258, 1271 (Fed. Cir. 2001)); *Comput. Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366, 1374 (Fed. Cir. 2008) (“For example, repeated and definitive remarks in the written description could restrict a claim limitation to a particular structure.”).

Accordingly, Broadcom’s construction appropriately tracks the ’107 Patent’s own characterization of the cavity portions’ communication with each other:

'107 Patent Specification	Broadcom Proposed Construction
<p>because the cavity portion 119 formed below the resistance element 120 communicates with the space within the cap 141 [cavity 143] through the hole Het, <u>the atmosphere of the cavity portion 119 has the same degree of vacuum as the atmosphere in the cap 141</u></p> <p>(Ex. 2 at 16:60-64 – annotations added)</p>	<p>wherein openings exist between said second cavity portion and said first cavity portion such that <u>the atmosphere of said second cavity portion has the same degree of vacuum as the atmosphere in said first cavity portion</u></p>

For these reasons, the Court should adopt Broadcom’s proposed construction.

2. **“wherein said cap body is provided with a recess portion for forming said cavity portion and a drum portion enclosing the recess portion” (claim 7)**

Broadcom’s Proposed Construction	Panasonic’s Proposed Construction
Indefinite under 35 U.S.C. § 112	Plain and ordinary meaning

The last limitation of Claim 7 of the ’107 Patent claims a particular configuration of a cap body, such that the configuration forms “said cavity portion.” Ex. 2 at claim 7. But Claim 7 does not provide a clear antecedent basis for “said cavity portion.” *Id.* In fact, the claim discloses a “**first cavity portion**” and a “**second cavity portion**,” but no means to determine which of those two, if either, is referred to by “**said cavity portion**”:

7. An electronic device, comprising:
a main body substrate having a plurality of cell regions in which at least one element is disposed;
a cap body placed on said main body substrate;
a **first cavity portion** provided in a position having said element disposed therein and being located in at least one cell region of said plurality of cell regions, enclosed by said main body substrate and said cap body to be maintained in an atmosphere of reduced pressure or in an atmosphere of inert gas; and
a ring-shaped joining portion provided between said main body substrate and said cap body for isolating **said first cavity portion** from external space,
wherein said electronic device comprises a support member for supporting said element, and a **second cavity portion formed** below said support member,
wherein **said second cavity portion** is configured to communicate with **said first cavity portion**, and
wherein said cap body is provided with a recess portion for forming said cavity portion and a drum portion enclosing the recess portion, and said main body substrate is provided with an engagement portion for engaging with said drum portion.

Ex. 2 (annotation and emphasis added). The phrase “cavity portion” is never used elsewhere in the claim without a descriptor of it being the “first” or “second” cavity portion. “Said cavity portion” could refer to either the first cavity portion, the second cavity portion, or a different cavity portion entirely, and therefore lacks a clear antecedent basis.

“[A] claim could be indefinite if a term does not have proper antecedent basis where such basis is not otherwise present by implication or the meaning is not reasonably ascertainable.” *Halliburton Energy Servs, Inc. v. M-I LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008) (citing *Energizer Holdings, Inc. v. Int’l Trade Comm’n*, 435 F.3d 1366, 1370–71 (Fed. Cir. 2006)). *See also* Manual of Patent Examining Procedure § 2173.05(e) (8th ed., rev. 8, July 2010) (“A claim is indefinite when it contains words or phrases whose meaning is unclear. The lack of clarity could arise where a claim refers to ‘said lever’ or ‘the lever,’ where the claim contains no earlier recitation or limitation of a lever and where it would be unclear as to what element the limitation was making reference.”).

In *Bushnell Hawthorne, LLC v. Cisco Sys., Inc.*, 813 Fed. Appx. 522, 525 (Fed. Cir. 2020), the Federal Circuit affirmed the district court’s finding that “the antecedent basis for ‘said different IP Address’ is unclear” and the term is therefore indefinite. The rest of the claim disclosed first, second, and third IP Addresses, and the district court therefore found it was “not possible to discern which of the three addresses was referenced by the disputed limitation.” *Id.* The Federal Circuit agreed, stating that “[w]ith three different IP addresses to choose from, a POSA faced with the ‘said different IP Address’ limitation is left to wonder which of the different IP addresses is ‘said’ different one.” *Id.* at 526. Similarly, in *Imperium (IP) Holdings v. Apple Inc.*, 920 F. Supp. 2d 747 (E.D. Tex. 2012), the court found a claim indefinite where the term “the output of the red pixels” lacked clear antecedent basis. The claim had previously only referred to “a red pixel having an output” and “the output of the red pixel” with a singular red pixel. *Id.* at 756. The court agreed with defendants that the switch from a singular red pixel to plural red pixels made it “not clear to which pixel or pixels this claim language refers” and that the claim was “unclear as to whether

the A/D converter converts the output of multiple pixels into one digital signal, or converts multiple outputs of one pixel across frames into one digital signal, or something else.”

Here too, the disputed term “said cavity portion” could refer to one of several options: the first cavity portion or the second cavity portion. As in *Bushnell* and *Imperium*, the claim language does not tell a POSITA which cavity portion is being referred to, so he would be “left to wonder which of the different [cavity portions] is ‘said’ [cavity portion].” *Bushnell*, 813 Fed. Appx. at 526. And, as in *Bushnell*, “[t]he specification does not clarify the meaning,” as it too discusses various cavity portions “without explanation or antecedent basis.” *Id.* Indeed, the term “first cavity portion” is never used in the specification at all, and the term “second cavity portion” is used only 3 times, in contrast to the nearly 50 times “cavity portion” is used without specifying *which* cavity portion. *See generally* Ex. 2. The specification thus would not assist one of skill in the art in understanding which cavity portion forms the antecedent basis for “said cavity portion” in the disputed claim term. Accordingly, the claim term “wherein said cap body is provided with a recess portion for forming said cavity portion and a drum portion enclosing the recess portion” is indefinite.

C. U.S. Pat. No. 6,975,641

1. “a transmission timer value” / “said transmission timer value” / “the transmission timer value” / “said timer values” (claim 13)

Broadcom’s Proposed Construction	Panasonic’s Proposed Construction
Each of these phrases refers to the identical transmission timer value.	Plain and ordinary meaning.

The preamble of claim 13 recites “a transmission timer value” and the body of the claim recites “*said* transmission timer value,” “*said* timer values,” and “*the* transmission timer value” (the latter of which is repeated three times):

13 [preamble]. A transmission device for transmitting/receiving a data frame including **a transmission timer value** indicating a total frame time of data frames subsequent thereto by using a single transmission path, comprising:

- [1] a receiving portion for receiving the data frame including **said transmission timer value**;
- [2] a transmission timer acquiring portion for acquiring **the transmission timer value** included in the data frame received by said receiving portion;
- [3] a transmission timer for suspending transmission for a frame time indicated by **the transmission timer value** acquired by said transmission timer acquiring portion, and when none of **said timer values** is acquired, suspending transmission for a time indicated by a predetermined initial value;
- [4] a transmitting frame constructing portion for constructing a data frame to be transmitted including **the transmission timer value** so set as to indicate the total frame time of the data frames subsequent thereto; and
- [5] a transmitting portion for transmitting the data frame to be transmitted constructed by said transmitting frame constructing portion, and
- [6] when received one or more data frames, confirming, by said transmission timer, that said transmission path is available through an elapse of the time² of suspending transmission, and then transmitting one or more of the data frames to be transmitted constructed by said transmitting frame constructing portion in sequence.

Ex. 3 at claim 13 (emphasis added, square bracketed numbers added). The question therefore becomes whether each of these phrases refers to the same timer value. And the intrinsic evidence confirms that, yes, they do refer to the same time value.

² The word “timer” was originally used in element [6] above but was replaced by the word “time” in a Certification of Correction signed and sealed on April 18, 2006. See Ex. 3, last page.

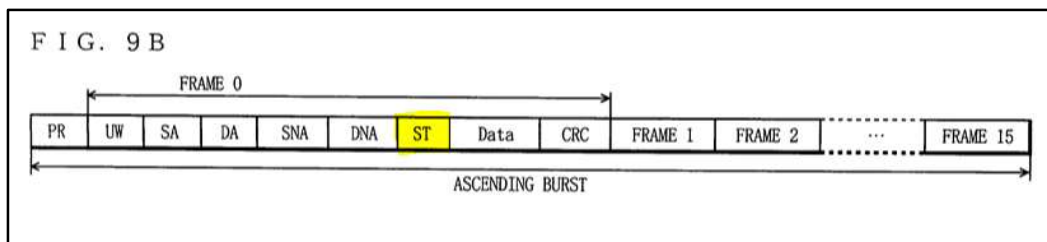
The claim words “said” and “the” refer to the antecedent phrase “transmission timer value” recited in the preamble. First, the “use of the term ‘said’ indicates that [said transmission timer value] is a reference back to the previously claimed” transmission timer value recited in claim 13’s preamble. *Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d 1283, 1291 (Fed. Cir. 2015); *see also Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1343 (Fed. Cir. 2008) (noting that phrases using “said” are “anaphoric phrases, referring to the initial antecedent phrase”); *Salazar v. AT&T Mobility LLC*, 64 F.4th 1311, 1317 (Fed. Cir. 2023) (“[W]hile the claim term ‘a microprocessor’ does not require there be only one microprocessor, the subsequent limitations referring back to ‘said microprocessor’ require that at least one microprocessor be capable of performing each of the claimed functions.”). Second, the word “the” in the phrase “the transmission timer value” similarly refers to the phrase “a transmission timer value” recited in the preamble. *TomTom, Inc. v. Adolph*, 790 F.3d 1315, 1329 (Fed. Cir. 2015) (“‘The storage device’ can only refer to one thing: the ‘at least one storage device’ found in the first limitation of claim 1.”) (Court’s emphasis); *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 954 (Fed. Cir. 2006) (“‘[T]he abutment’ of limitation [e] refers to the particular abutment described in the preamble of the claim, not to any structure that could conceivably serve as an abutment.”).

In sum, every “timer value” recited in claim 13 is the same, and the Court should adopt Broadcom’s construction. *Baldwin Graphic Sys.*, 512 F.3d at 1343; *TomTom*, 790 F.3d at 1329.

2. “a first transmission timer for suspending transmission for a frame time indicated by the transmission timer value acquired by said first transmission timer acquiring portion, and when none of said timer values is acquired, suspending transmission for a time indicated by a predetermined initial value” (claim 13)

Broadcom’s Proposed Construction	Panasonic’s Proposed Construction
Indefinite	Plain and ordinary meaning.

The claimed “transmission timer” is shown as a black box “603” in Figures 6-8 of the ’641 patent. The patent discloses that data frames include an “ST” field, with ST being a timer value “indicating a total frame time of following data frames.” Ex. 3 at 17:57-67 (“The only difference observed in the bursts in FIGS. 9A and 9B is that ST is newly inserted subsequent to DNA. In ST, a transmission timer value indicating a total frame time of following data frames is stored. The transmission timer value is typically the number of frames to be transmitted Subsequent to the present frame. Accordingly, the total frame time can be easily obtained by multiplying such number of subsequent frames by a frame time per frame.”); *see also* Figure 9B (*infra*):



The operation of the claimed “transmission timer” is straightforward. It decrements the value of ST by 1 for every frame transmitted “and when the value reaches 0” it “gives permission for transmission.” Ex. 3 at 18:55-62 (“The transmission timer 603 subtracts the value set therein by 1 every time the transmission time for one frame (frame time) passes, for example, and when the value reaches 0, gives permission for transmission to the base band processing part 102. As

described above, the initial value is set in the transmission timer 603 on timing of polling transmission, and thereafter, the value is subtracted every time the transmission time passes.”).

But the patent does not disclose a definite way for implementing the claimed invention when an “ST” field is *not* acquired. Thus, a person of ordinary skill in the art would not have reasonable certainty about the scope of the claimed phrase “when *none* of said timer values is acquired, suspending transmission for a time indicated by a predetermined initial value.” (emphasis added). This is because the claimed “predetermined initial value” is not just any preset value, it must be “a value not less than the maximum transmission time possibly thought of.” Ex. 3 at 18:29-30. And dependent claim 14 specifies further that “said predetermined initial value is determined” as precisely “the maximum time required for error-free transmission of all of said data frames.” According to claim 13, the transmission timer is normally set “for a frame time indicated by the transmission timer value acquired by said transmission timer acquiring portion” (*i.e.*, the value of ST shown in Figure 9B above), but “when none of said timer values is acquired,” it is set for an unspecified “predetermined initial value.” If the device does not receive the ST indication of how many frames are to be transmitted, however, then there is no disclosure of how the device can possibly know “the maximum time required for error-free transmission of all of said data frames” as required by claim 14.

Specifically, the patent explains that, for one type of communication involving “polling,” the “maximum transmission time” is “typically obtained through” a calculation. 18:29-48. The calculation uses as input, among other things, “the number of data frames.” *See id.* However, the patent does not explain how “the number of data frames” is known *a priori* in the case when, as recited in claim 13, “none of said timer values is acquired.” The disclosed equation is useless if

the transmission device does not know how many data frames will be received. Similarly, without knowing how many data frames are to be transmitted, the device cannot calculate (or measure or estimate) “the maximum time required for error-free transmission of all of said data frames” as required by claim 14.

Further, the patent discloses that a calculation is not the only way to determine the predetermined initial value: it may also “be an actual measurement or a predicted value.” Ex. 3 at 18:51-54 (“Further, the description in the above is exemplarily made for a case where the initial value is obtained through calculation. The initial value, however, may be an actual measurement value or a predicted value.”). However, the patent still does not explain *how* to derive the predetermined initial value via “an actual measurement or a predicted value.” For instance, what is being measured? How is such a measurement made? When is it made? What does the measuring? And a “prediction” is made how? And by what? Based on what parameters or indications? The patent provides no answers to these fundamental questions. This is problematic because, as discussed previously, the “predetermined initial value” cannot be just *any* preset value; rather, it “is a value not less than the maximum transmission time possibly thought of” (Ex. 3 at 18:29-30) and must be precisely “the maximum time required for error-free transmission of all of said data frames” according to claim 14. *See* Ex. 3 at claim 14. The patent does not explain how an “actual measurement” or how “a predicted value” can be used to determine the “maximum transmission time possibly thought of.” And the issue was not discussed during prosecution either. Thus, the claim scope is far from reasonably certain.

In sum, all three ways of measuring this value suggested by the patent are fatally flawed: (1) an exemplary calculation that by its own terms requires prior knowledge of the “the number of

data frames”—an equation that is useless when the “ST” value has not been received; (2) “an actual measurement” that is not described at all; and (3) “a predicted value” that is also not described at all. The claim scope is therefore not reasonably certain and claim 13 is indefinite. *Dow Chem. Co. v. Nova Chemicals Corp. (Canada)*, 803 F.3d 620, 634 (Fed. Cir. 2015) (“Neither the patent claims nor the specification here discusses the four methods or provides any guidance as to which method should be used or even whether the possible universe of methods is limited to these four methods.”); *HZNP Medicines LLC v. Actavis Lab’ys UT, Inc.*, 940 F.3d 680, 698 (Fed. Cir. 2019) (holding claim indefinite where two tests were disclosed to assess a claim term but “those tests do not provide consistent results”).³

3. **“when received one or more data frames, confirming, by said transmission timer, that said transmission path is available through an elapse of the timer of suspending transmission, and then transmitting one or more of the data frames to be transmitted constructed by said transmitting frame constructing portion in sequence” (claim 13)**

Broadcom’s Proposed Construction	Panasonic’s Proposed Construction
Indefinite	Plain and ordinary meaning.

The body of claim 13 recites five structural elements (elements [1] – [5]) and concludes by reciting a step for “transmitting” data frames—which transmitting step is done after prior reception of “one or more data frames” and confirming that a “transmission path is available”:

³ See also *Saso Golf, Inc. v. Nike, Inc.*, 843 F. App’x 291, 297 (Fed. Cir. 2021) (finding claims indefinite where claim scope depended on measurements and there were multiple ways to measure resulting in different answers); *Ball Metal Beverage Container Corp. v. Crown Packaging Tech., Inc.*, 838 F. App’x 538, 542 (Fed. Cir. 2020) (summarizing prior holdings that claims may be indefinite when “different known methods exist for calculating a claimed parameter,” the patent does not suggest “using one method in particular,” and “application of the different methods result in materially different outcomes”).

13 [preamble]. A transmission device for transmitting/receiving a data frame including a transmission timer value indicating a total frame time of data frames subsequent thereto by using a single transmission path, comprising:

- [1] a receiving portion for receiving the data frame including said transmission timer value;
- [2] a transmission timer acquiring portion for acquiring the transmission timer value included in the data frame received by said receiving portion;
- [3] a transmission timer for suspending transmission for a frame time indicated by the transmission timer value acquired by said transmission timer acquiring portion, and when none of said timer values is acquired, suspending transmission for a time indicated by a predetermined initial value;
- [4] a transmitting frame constructing portion for constructing a data frame to be transmitted including the transmission timer value so set as to indicate the total frame time of the data frames subsequent thereto; and
- [5] a transmitting portion for transmitting the data frame to be transmitted constructed by said transmitting frame constructing portion, and
- [6] when received one or more data frames, confirming, by said transmission timer, that said transmission path is available through an elapse of the time of suspending transmission, and then transmitting one or more of the data frames to be transmitted constructed by said transmitting frame constructing portion in sequence.

Claim 13 (emphasis added, square bracketed numbers added). This claim is indefinite as a matter of law because it recites “both an apparatus and a method of using that apparatus.” *Rembrandt Data Techs., LP v. AOL, LLC*, 641 F.3d 1331, 1339 (Fed. Cir. 2011) (quoting *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005)).

The indefinite claim in *Rembrandt* (reproduced below) is like claim 13 in that both claims first recite structural elements and then conclude with a step of “transmitting” data frames:

3. A data transmitting device for transmitting signals corresponding to an incoming stream of bits, comprising:

first buffer means for partitioning said stream into frames of unequal number of bits and for separating the bits of each frame into a first group and a second group of bits;

fractional encoding means for receiving the first group of bits of each frame and performing fractional encoding to generate a group of fractionally encoded bits;

second buffer means for combining said second group of bits with said group of fractionally encoded bits to form frames of equal number of bits; trellis encoding means for trellis encoding the frames from said second buffer means; and

transmitting the trellis encoded frames.

Rembrandt Data Techs, 641 F.3d at 1339 (emphasis added).

But claim 13 here is even “worse” than the invalid *Rembrandt* claim because, here, the “transmitting” step of claim element [6] is performed only after additional method steps are performed (*i.e.*, “when received one or more data frames” and “confirming by said transmission timer, that said transmission path is available through an elapse of the timer of suspending transmission”). Notably, each of claim elements [1]-[5] recite structural elements in terms of what those elements are “for” (e.g., “a receiving portion *for* receiving the data frame including said transmission timer value”). But element [6] is different—it does not recite any structure at all, nor is it written in terms of what any structure is “for.” Instead, it recites the step of “transmitting” data after “one or more” (unspecified) data frames have been “received” and after “confirming” that a transmission path is available.

Indeed, the patentee separated “transmitting” element [6] from structural elements [1]-[5] by line indentation (*see* claim 13 *supra*) and “[t]hat indentation is meaningful.” *Shotkam LLC v. Tachyon, Inc.*, No. CV H-20-1070, 2021 WL 23311, at *4 (S.D. Tex. Jan. 4, 2021) (citing 37 C.F.R. § 1.75(i) (“Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation.”)); *see Beckmann v. Gandhi*, 646 F. App’x 950, 959 (Fed. Cir. 2016) (finding three claim elements “separated by line indentation” to be three

different elements). Setting off the “transmitting” step from the structural elements of the claim by use of line indentation cements that claim 13 recites both a transmission device and a method for using it to transmit data. Claim 13 thus “does not apprise a person of ordinary skill in the art of its scope, and it is invalid under section 112, paragraph 2.” *IPXL Holdings*, 430 F.3d at 1384. Dependent claim 14 is also indefinite. *Rembrandt Data Techs.*, 641 F.3d at 1339.⁴

D. U.S. Pat. No. 7,328,389

1. **“form[ing] a transmit frame by repeating and discretely arranging at least one of a same modulation method information signal and a same error correction method information signal at the same time within the same frame” (claims 1, 3)**

Broadcom’s Proposed Construction	Panasonic’s Proposed Construction
form[ing] a transmit frame by repeating at least two identical modulation method information signals at the same time within the same frame, and by repeating at least two identical error correction method information signals at that same time in that same frame, with the modulation method information signals separated from the error correction method information signals in the same frame	Plain and ordinary meaning.

- a) **“At least one of ... and” requires modulation method and error correction method information signals**

Claim 1 as originally filed in the ultimate parent application of this patent family (now U.S. Pat. No. 7,069,489) recited “a frame forming section that forms a transmit frame by discretely

⁴ The prosecution history confirms that claim 13 includes a method step. The examiner required the applicant to elect between two different groups of claims (including application claim 19, which later issued as claim 13), and the examiner indicated that both groups were “drawn to a data transmission *method*.” Ex. 6 (Mar. 5, 2004 Office Action) at 2 (emphasis added). The applicant elected the second group (including application claim 19) and agreed that the claims are “drawn to a data transmission *method*.” Ex. 7 (Mar. 30, 2004 Response) (emphasis added).

arranging said modulation method information signal *and/or* error correction method information signal.” *See* Ex. 8 (July 18, 2003 claims in parent application) at claim 1. The examiner objected to this language, stating that “the use of the term ‘and/or’ should be avoided because it raises indefinite issues. It is not clear whether the term means ‘and’ or ‘or.’” Ex. 9 (Sept. 6, 2005 Office Action in parent) at 3. The applicant then cancelled all claims, and submitted new claims, including new claim 11, the relevant part of which read “a frame former that forms a transmit frame by repeating and discretely arranging at least one of the same modulation method information signal and the same error correction method information signal.” Ex. 10 (Nov. 30, 2005 Response in parent) at 2; *see id.* at 9 (“Applicants have replaced each instance of the term ‘and/or’ in claims 1-6 and 9 with the terminology ‘at least one of’ in the newly submitted claims 11-20.”). Clearly, if the applicant wanted “and/or” to mean “or,” it would have been simpler to use the word “or.”

And shortly before the applicant amended the claims in the above manner, the Federal Circuit held that the using the phrase “at least one of” before a series of things separated by the word “and” means that *each* of the things is being claimed. *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 886 (Fed. Cir. 2004) (“The phrase ‘at least one of’ precedes a series of categories of criteria, and the patentee used the term ‘and’ to separate the categories of criteria, which connotes a conjunctive list.”). Thus, here, the claim language requires both modulation method information signals *and* error correction method information signals. This is not an “either / or” scenario—both types of signals are required.⁵

⁵ *See also Stragent LLC v. BMW N. Am. LLC*, No. 6:11CV278 LED-JDL, 2013 WL 3367295, at *4 (E.D. Tex. July 3, 2013) (“The use of ‘at least’ and ‘and’ indicate that ... the command set must include all of the following commands: a play command, a pause command, a shuffle command,

b) “repeated” requires there to be at least two identical information signals of each type

The claim requires that at least two identical modulation method information signals be “repeated” and at least two error correction method information signals be repeated. If there was only one such signal, it would not be “repeated.” This is shown for example in Figure 10:

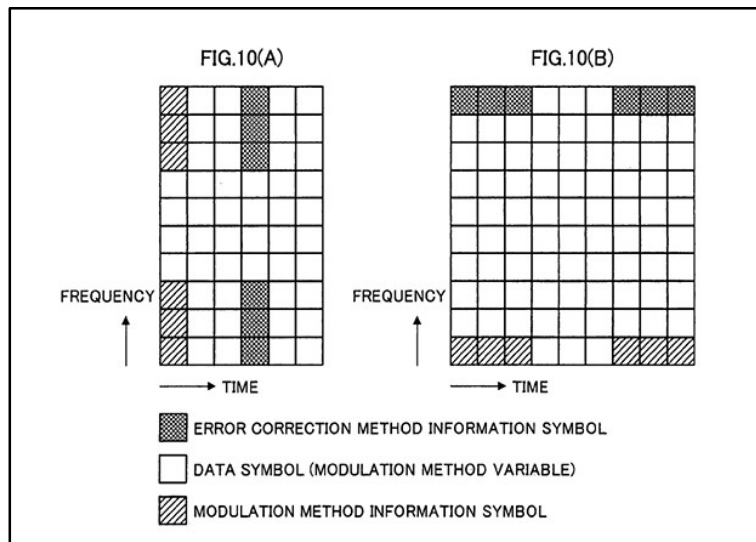


Figure 10A and 10B show OFDM (orthogonal frequency division multiplexing) frames, which are divided vertically along a frequency axis (with each frequency being a different subcarrier) and

an artist command, a song command, and a playlist command. ... The use of ‘and’ at the end of the recited list designates the list as conjunctive.”) (citing *SuperGuide*, 358 F.3d at 885); *TouchTunes Music Corp. v. Rowe Int’l Corp.*, 727 F. Supp. 2d 226, 238 (S.D.N.Y. 2010) (“The plain meaning of ‘at least one of ... and’ is conjunctive and requires at least one of each category unless the intrinsic records requires a departure from such plain meaning.”) (citing *SuperGuide*, 358 F.3d at 885-87); *Modine Mfg. Co. v. Borg-Warner, Inc.*, No. 12-CV-815-JPS, 2013 WL 5651381, at *9 (E.D. Wis. Oct. 15, 2013), *aff’d sub nom. Modine Mfg. Co. v. Borgwarner, Inc.*, 563 F. App’x 775 (Fed. Cir. 2014) (construing phrase “at least one of a positively locking *and* frictionally locking fashion” as requiring “both a positive and frictional lock”) (citing *SuperGuide*, 358 F.3d at 885).

horizontally in units of time. Ex. 4 at 10:41-53. As can be seen, the error correction method information signals and modulation method information signals are repeated in different subcarriers in Figure 10A. The repeating of the signals is done to mitigate the problem of “frequency selective fading that causes a decline in the gain of a certain frequency ... on the propagation path.” Ex. 4 at 10:54-67. Figure 10B shows another embodiment of repeating of signals in respective subcarriers along the time axis. This repeating mitigates the problem of “path fluctuations” that may “occur over time.” *Id.* at 11:1-13.

c) “discreetly arranging” means transmitting signals at separate locations in the frame

The modulation method and information method information signals are “discreetly arranged,” meaning that each signal is arranged in a separate location in the frame (*e.g.*, a single signal is transmitted on a subcarrier at one time interval). This is depicted in Figure 10 as shown above where each location in the frame is one block. Ex. 4 at 10:54-58 (“In the example shown in FIG. 10(A), an error correction method information symbol is arranged discretely in subcarriers of different frequency at the same time, and a modulation method information symbol is arranged discretely in subcarriers of different frequency at the same time.”); *see also id.* at 4:38-52 (“In other words, modulation method information symbols MX and modulation method information symbols MY are placed at *different locations in the frame*, and error correction method information symbols CX and error correction method information symbols CY are placed at *different locations in the frame*.”) (emphasis added); *id.* at 6:30-40 (“Here, as is clear from FIG. 3, these modulation method information symbols MX and error correction method information symbols CX, and modulation method information symbols MY and error correction method information symbols

CY, are arranged discretely at *separate locations in a transmission frame*, and are arranged at regular intervals.”) (emphasis added).

d) “at the same time”

The phrase “same time” is recited only once in the claim. Thus, each of the repeated signals of both recited types are transmitted at this exact same time. This can be done, for example, by transmitting all the signals simultaneously but in different subcarriers (*e.g.*, at different locations along the frequency axis in the frame).

E. U.S. Pat. No. 9,473,268

- 1. “forms the transmission frame by repeating and discretely arranging the same modulation method control signal on a first multiple of a plurality of subcarriers on a frequency axis and by repeating and discretely arranging the same error correction method control signal on a second multiple of the plurality of the subcarriers on the frequency axis” (claims 1, 13)**

Broadcom’s Proposed Construction	Panasonic’s Proposed Construction
forms the transmission frame by repeating at least two identical modulation method control signals at the same time within the same frame on a first multiple of a plurality of subcarriers on a frequency axis, and by repeating at least two identical error correction method control signals at the same time in that same frame on a second multiple of a plurality of subcarriers on a frequency axis, with the modulation method control signals separated from the error correction method control signals in the same frame	Plain and ordinary meaning.

The ’268 patent (Ex. 5) is a continuation of the ’389 patent, and they share a common specification. The relevant phrase of claims 1 and 13 of the ’268 patent has much overlap with

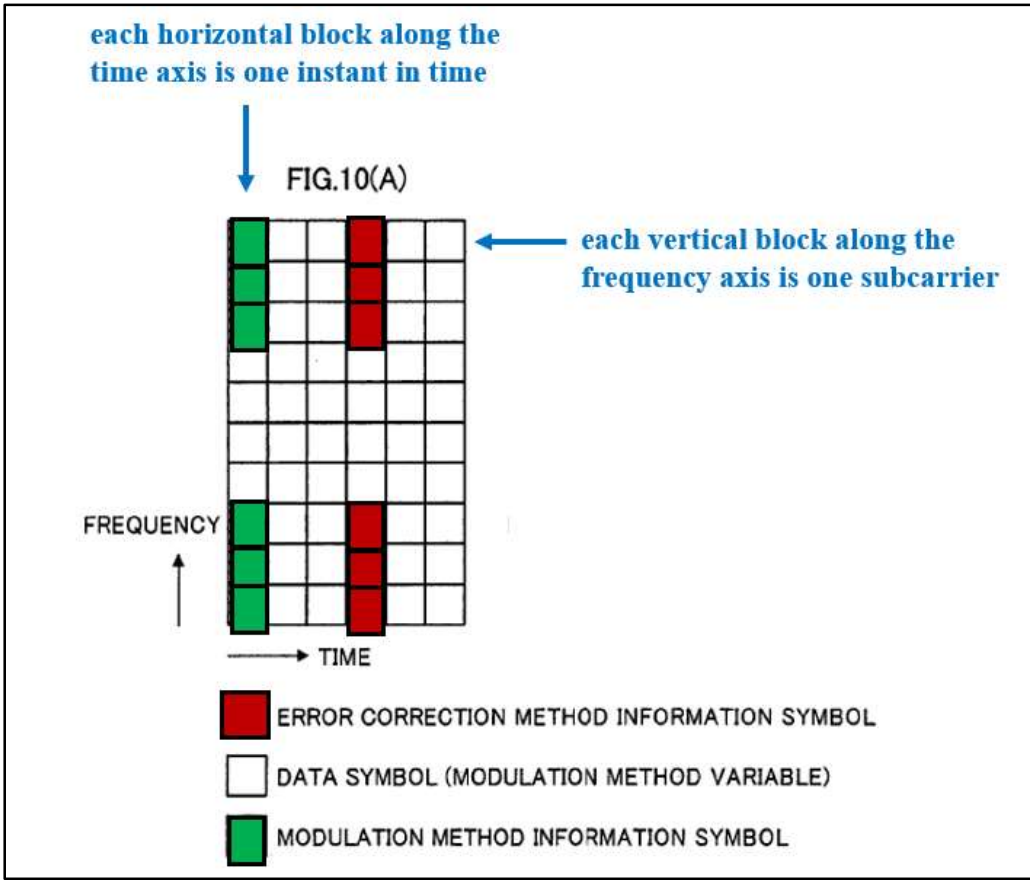
the relevant phrase of the '389 patent discussed above, with the differences and similarities discussed below.

First, instead of reciting “at least one of ... and,” the '268 claim recites “repeating and discretely arranging the same modulation method control signal ...” and “repeating and discretely arranging the same error correction method control signal ...” Thus, here again, *both* types of signals are required.

Second, here again the claim recites “repeating,” which requires there to be *at least two* identical signals of *each* type. See Figure 10A discussed above.

Third, as discussed above with respect to the parent '389 patent, “discretely arranging” means that each signal is arranged in a separate location in the frame (*e.g.*, a single signal is transmitted on a subcarrier at one time interval). Again, as seen above in Figure 10, each location in the frame is one block.

Fourth, the repetition of “repeating ... on a first [/second] multiple of a plurality of subcarriers on a frequency axis” means that the repeating of each type of signal is done at the same respective time. This is shown, for example, in Figure 10A (annotated):



2. “forms the transmission frame by repeating and discretely arranging the same modulation method control signal on the first multiple of the plurality of subcarriers at the same first time and the same error correction method control signal on the second multiple of the plurality of the subcarriers at the same second time” (claims 2, 14)

Broadcom’s Proposed Construction	Panasonic’s Proposed Construction
forms the transmission frame by repeating at least two identical modulation method control signals at the same first time within the same frame on a first multiple of a plurality of subcarriers on a frequency axis, and by repeating at least two identical error correction method control signals at the same second time in that same frame on a second multiple of a plurality of subcarriers on a frequency axis, with the	Plain and ordinary meaning.

Broadcom's Proposed Construction	Panasonic's Proposed Construction
modulation method control signals separated from the error correction method control signals in the same frame	

Claims 2 and 14 makes explicit what is inherent in claims 1 and 13 discussed above, *i.e.*, that the first signals are repeated “at the same first time” and the second signals are repeated “at the same second time.” In annotated Figure 10A above the modulation method control signals (green blocks) are repeated at a first time and the error correction method control signals (red blocks) are repeated at a second time.

III. CONCLUSION

For the foregoing reasons, Broadcom respectfully requests that the Court adopt Broadcom's proposed constructions of the disputed claim terms.

DATED: October 12, 2023

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CERTIFICATE OF SERVICE

Pursuant to the Federal Rules of Civil Procedure and Local Rule CV-5, I hereby certify that, on October 12, 2023, all counsel of record who have appeared in this case are being served with a copy of the foregoing via the Court's CM/ECF system.

/s/ Paige Arnette Amstutz

Paige Arnette Amstutz